UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
OSB1998-1022

June 8, 1999

Dave Reilly
Federal Highway Administration
The Equitable Center, Suite 100
530 Center St. NE
Salem, Oregon 97301

Re: Biological Opinion for the Sunnyside Road - Mt. Scott Creek, Rock Creek, Sieben Creek

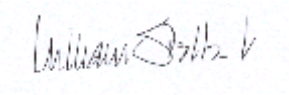
Dear Mr. Reilly:

The National Marine Fisheries Service (NMFS) has enclosed the Biological Opinion (BO) for widening Sunnyside Road. This project includes the construction of bridges at the Mt. Scott Creek and Rock Creek crossings and placement of an open bottom arch culvert at Sieben Creek. This project is described in your Biological Assessment (BA) submitted with your request for consultation.

This opinion considers the Lower Columbia River steelhead (*Oncorhynchus mykiss)* and SW Washington/Columbia River cutthroat (*Oncorhynchus clarki clarki)* which occur in the proposed project area. Lower Columbia River steelhead were listed as threatened under the ESA by NMFS (March 19, 1998, 63 FR 13347). Critical habitat has been proposed for the Lower Columbia River steelhead (February 5, 1999, 64 FR 5740). and includes for Oregon all river reaches accessible to listed steelhead in the Columbia River between the Willamette River and Hood River in Oregon and the river reaches of the Willamette River and Columbia River downstream of the Willamette Falls. Critical habitat consists of the water, substrate, and adjacent riparian zone. Southwestern Washington/Columbia River cutthroat were proposed for listing as threatened under the ESA by NMFS (April 5, 1999, 64 FR 16397). Critical habitat has not been proposed for the Southwestern Washington Columbia River cutthroat trout.

This opinion constitutes formal consultation for the Lower Columbia River steelhead and SW Washington/Columbia River cutthroat trout. If you have any questions regarding this letter, please contact Jim Turner of my staff at (503) 231-6894.

Sincerely,



William Stelle, Jr.
Regional Administrator

cc w/ encl: Pieter Dykman - ODOT
Bill Davis - Corps
John Marshall - USFWS
Randy Reeve - ODFW
Don Bennet - ODFW
Tami Hubert - DSL
Tom Melville - DEQ

Endangered Species Act - Section 7
Consultation

BIOLOGICAL & CONFERENCE OPINION

Sunnyside Road - Mt. Scott Creek, Rock Creek and Sieben Creek

Agency: Federal Highway Administration

Consultation Conducted by: National Marine Fisheries Service,
Northwest Region

Date Issued: June 8, 1999

Refer to: OSB1998-1022

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I. Background

On May 29, 1998, the National Marine Fisheries Service (NMFS) received a biological assessment and request from Oregon Department of Transportation (ODOT) for Endangered Species Act (ESA) section 7 consultation for road construction actions within the Mt. Scott Creek and Rock Creek watersheds within the Lower Willamette Basin. Additional information necessary for completing the consultation was submitted throughout the consultation process. Response to NMFS's inquiry of interdependence and interrelationship of this project with other transportation projects and cumulative effects was received on March 10, 1999. Conceptual bridge design for the crossing of Mt. Scott Creek was received March 12, 1999. Oregon Department of Transportation (ODOT) is the lead agency and designated non Federal representative for transportation related actions in Oregon that are supported by funds from the Federal Highway Administration (FHWA). This Biological and Conference Opinion (BO) is based on the information presented in the Biological Assessment (BA) and supporting environmental and technical documents prepared as part of the NEPA process.

ODOT has determined that Lower Columbia River steelhead (*Oncorhynchus mykiss*) -- listed as threatened -- may occur within the project action area. Since initiation of this consultation, the Southwestern Washington/Columbia River cutthroat trout *(Oncorhynchus clarki clarki)* have been proposed for listing. The ODOT has requested that NMFS conference on the effects of this project to the cutthroat trout. (The Lower Columbia River chinook salmon *(Oncorhynchus tshawytscha)*, listed as threatened under ESA, occupies the geographic area that includes the project, yet does not occur within the project action area).

ODOT and Clackamas County are proposing to widen Sunnyside Road. This project is included as part of a regional transportation planning process that has been conducted by Metro -- a regional government serving Clackamas, Multnomah, and Washington Counties, and numerous cities in the Portland metropolitan area. Two perennial creeks and one intermittent creek will be affected by this project. Bridges will used to replace culverts at the Mt. Scott Creek and Rock Creek crossings. An open bottom arch culvert will be used at the road crossing of Sieben Creek.. This activity is necessary due to increasing transportation needs as a result of urban growth. These actions were determined to affect the indicated species. The effects determination is made using the methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996). ODOT in coordination with Clackamas County determined that the proposed actions were likely to adversely affect the indicated species.

This BO reflects the results of the consultation process. This consultation process has involved various discussions, correspondence, and other communications to obtain necessary information to augment the BA for determining the effects of the project. This has included consideration of alternatives for avoiding or minimizing adverse effects. A substantial discussion concerned the use of culverts or bridges at the crossing of Mt. Scott Creek and Rock Creek. Clackamas County agreed with the recommendation of the federal and state resources agencies concluding that bridges would be used. Additional discussion concerned the potential for an extended effect of this action due to the interdependence and interrelationship of this action with other transportation actions within the area. Cumulative effects within the Mt. Scott Creek were also considered to be substantial. Actions that

would mitigate the adverse effects of the proposed action were considered important. Incorporation of the bridges at Mt. Scott Creek and Rock Creek provide an opportunity to restore stream functions. The use of bridges in the project design would remove a fish barrier, open the riparian corridor for stream movement, allow for the extension of riparian habitat, and provide for riparian wetland enhancement. The act of replacing the culverts with bridges was consider adequate to compensate for the adverse effects of the road widening.

The objective of this biological opinion is to determine whether the action to widen Sunnyside Road including replacing culverts at Mt. Scott Creek and Rock Creek with bridges, and replacing the culvert at Sieben Creek. is likely to jeopardize the continued existence of the indicated species or destroy or adversely modify critical habitat.

II. Proposed Actions

The FHWA through ODOT and Clackamas County have proposed to widen Sunnyside Road in east Portland, Clackamas County, Oregon. This proposal includes replacing existing culverts at Mt. Scott Creek and Rock Creek with bridges, and replacing the existing culvert at Sieben Creek. The proposed work will occur over a number of years. Phase one of the project will include the stream crossing at Mt. Scott Creek. Phase two of the project will include stream crossings at Sieben Creek and Rock Creek. The work will entail excavation of road base and removal of existing culverts. This will involve use of heavy equipment operated above or along side of the actively flowing streams. It is expected that the concrete box culverts at Mt. Scott Creek and Rock Creek will be broken or cut into small pieces that can be removed from the site. Similarly, the culvert at Sieben Creek will be cut into pieces and removed. Bridge construction will include the placement of bridge abutments, placing the bridge spans, and laying the road surface. The placement of an open bottom arch culvert or squashed pipe arch culvert at Sieben Creek will require placement of footings or otherwise establishment of solid foundation. The culvert will then be placed and secured. (See BA, and the Sunnyside Environmental Assessment (EA) and associated technical reports for additional details).

The bridge will be constructed to span the stream channel. The bridge design (presented as a conceptual drawing) will provide for a 15 meter wide corridor approximately 50 meters long. The bridge abutments are sloped at 1.5 to 1 and extend onto the floodplain for approximately 13 meters on each side of the bridge. Rock riprap is expected to be placed along the lower portions of the bridge abutments.

The proposal incorporates conservation measures. Wetland impacts would be mitigated by replacing wetland functions and area of permanent wetland loss at a ratio of 1.5 acre to 1. (EA p. 110). Stream impacts affecting steelhead and cutthroat trout would be minimized and avoided by maintaining fish passage in accordance with ODFW guidance, restoring plantings along disturbed riparian area, and implementing a erosion control plan. Construction impacts will be minimized by conducting work during ODFW in-water work period, limiting riparian area and stream channel disturbance, monitoring for turbidity, and implementing pollution control measures (EA pp. 115-118) Water quality impacts would be mitigated by implementing an erosion control plan and replanting disturbed areas. Construction of water detention facilities will be considered. (EA pp. 122-123)

The action area for this proposal provides the geographic extent and basis for evaluating the effects of the proposal for this BO. The action area is defined by the direct and indirect effects of the proposed action. The proposed actions will have a direct and long term effect at each of the stream crossings due to short term construction activity and long term loss of riparian area and permanent presence of the road. The proposed action will have an upstream effect by improving fish passage and providing access to upstream rearing and spawning habitat. The proposed action will have a downstream effect through the discharge of sediment and other pollutants. In the long term, downstream effects of temperature, flows, woody debris input will be realized. For the purposes of this BO the action area for this proposal includes Mt. Scott Creek, from the headwaters to 100 meters downstream of the stream crossing; Rock Creek, from the headwaters to 100 meters downstream of the stream crossing; and Sieben Creek from the headwaters to 100 meters downstream of the stream crossing.

III. Biological Information and Critical Habitat

The listing status, biological information, and critical habitat elements or potential critical habitat for the indicated species are described in references cited in Table 1.

Table 1. References to Federal Register Notices containing additional information concerning listing status, biological information, and critical habitat designations for listed and proposed species considered in this biological opinion.

Species (Biological References)	Listing Status Reference	Critical Habitat Reference
Lower Columbia River steelhead (Busby et. al. 1995, Busby et. al. 1996)	The Lower Columbia River steelhead was listed as threatened under the ESA by NMFS (March 19, 1998, 63 FR 13347).	Critical habitat has been proposed for the Lower Columbia River steelhead (February 5, 1999, 64 FR 5740).
Southwestern Washington Columbia River cutthroat trout (Johnson, et. al. 1999, Trotter 1989)	The Southwestern Washington/Columbia River cutthroat was proposed for listing as threatened under the ESA by NMFS (April 5, 1999, 64 FR 16397).	Critical habitat has not been proposed for the Southwestern Washington Columbia River cutthroat trout.

The NMFS remains concerned over the low abundance and declining population of Lower Columbia River steelhead and Southern Washington Columbia River cutthroat trout. Mt Scott Creek has low numbers of steelhead and cutthroat in part due to access barriers and habitat degradation. Essential stream systems features critical to the survival of the steelhead and cutthroat that may be affected by the project include water quality, water quantity, rearing habitat, and riparian areas.

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NMFS must determine whether the action is likely to

jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of (1) defining the biological requirements of the listed species, and (2) evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NMFS evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NMFS must consider the estimated level of mortality attributable to: (1) collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmon's life stages that occur beyond the action area. If NMFS finds that the action is likely to jeopardize, NMFS must identify reasonable and prudent alternatives for the action.

Furthermore, NMFS evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' critical habitat. The NMFS must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. The NMFS identifies those effects of the action that impair the function of any essential element of critical habitat. The NMFS then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NMFS concludes that the action will adversely modify critical habitat it must identify any reasonable and prudent measures available.

For the proposed action, NMFS's jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NMFS's critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for adult and juvenile migration of the listed salmon under the existing environmental baseline.

A. Biological Requirements & Status of Species

The first step in the method NMFS uses for applying the ESA standards of § 7 (a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NMFS also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species NMFS starts with the determinations made in its decision to list the particular species for ESA protection and also considers new data available that is relevant to those determinations (see Table 1).

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stocks, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

The biological requirements for indicated species are referenced in Table 1. These include stream conditions that allow unimpaired access to stream habitat; clean, and cool water for spawning and rearing; streambed composed of gravels with low percentage of fine sediments; moderated flows that extend over winter and summer seasons; offchannel winter refuge areas; in-stream structure of boulders or large wood that will diversify flows regimes and create pool and riffle habitat for feeding and hiding; intact riparian area vegetated with trees and shrubs to provide shade and source of food; and sufficient numbers of returning spawning fish to sustain healthy populations.

The NMFS has identified that the Lower Columbia River steelhead trout are at low abundance. Of the many native stocks identified within the ESU, the majority of them are considered depressed. Habitat degradation has contributed to the decline. Blockage from dam and other barriers are of concern. Urbanization in the Portland and Vancouver area is of particular concern. Urbanization has been associated with general habitat degradation and changes of natural physical processes. Population trends are generally downward. The trend in the lower Willamette River -- predominantly Clackamas River -- do show an improvement that is due to non-native stocks (See References Table 1.).

The NMFS has identified that the SW Washington/Lower Columbia River anadromous cutthroat trout are at low abundance. The trends for out migrating anadromous cutthroat are declining, even though the fresh water form of the cutthroat are considered in good shape. There is some indication that the fresh water form of cutthroat can produce smolts, yet there is no evidence that this is occurring to the extent to offset the low numbers of anadromous forms. Habitat degradation including loss of riparian habitat and access remain of concern. (See References Table 1).

B. Environmental Baseline

The environmental baseline represents a basal set of conditions defined by the action area. The action area includes portions of Mt. Scott Creek, Rock Creek and Sieben Creek. This area represents approximately 1% of the range of the steelhead and cutthroat ESU's by observation.

The baseline conditions for the action area along Mt. Scott Creek have been impacted from the surrounding urban development. Development has directly encroached on the riparian area along Mt. Scott Creek. This has affected water quality, water quantity, temperature, stream bank stability, and input of organic/woody debris. Current stream crossing incorporates a concrete box culvert that impairs fish passage. Development within the watershed has reduced permeable surfaces and wetlands resulting in increased peak flows from storm water runoff and sediment and pollutants. Baseline conditions have been assessed using the methods described in "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996) and is described in the BA. The BA indicates that baseline functional condition that are not being met or are at risk include temperature, sediment, fish passage, substrate, large wood, pools, off channel habitat, flows, and watershed conditions. Potential for restoration includes moderation of flows, reduction of fine sediment input, re-establishment of riparian habitat, reconnection of riparian corridor, re-establishment of in-stream structure, and improving fish passage.

The baseline conditions for the action area along Rock Creek and Sieben Creeks have been impacted from the surrounding urban development and rural residential land use. Rock Creek and Sieben Creek are tributaries of the lower Clackamas River. Those portions of Rock and Sieben Creeks affected by the Sunnyside road project are outside of the range of the steelhead. These project elements are being evaluated for their effects on cutthroat trout. Although the BA did not explicitly address the baseline and project effects for these systems (cutthroat was only recently proposed), they are close in proximity to Mt. Scott Creek, and have similar surrounding conditions in the watershed.

Based on the best available information on the current status of these ESU's, the population status, trends, and genetics (as referenced in Table 1), and the poor environmental baseline conditions within the action areas, NMFS concludes that the biological requirements of the identified ESU's within the action area are not currently being met. Improvement in habitat conditions is needed to meet the biological requirements for survival and recovery of these species. Actions that do not sufficiently improve conditions toward properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of anadromous salmonids

V. Analysis of Effects

The effects determination in this opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. This process is described in the document "Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale" (NMFS 1996). This assessment method was designed for the purpose of providing adequate information for NMFS to determine the effects of actions subject to consultation. The effects of actions are expressed in terms of the expected affect - restore, maintain, or degrade - on aquatic habitat factors in the project area. The NMFS agrees with the effects determination presented in the BA (Table 1., BA p9.).

A. Effects of Proposed Action

For each individual action covered in this opinion, the effects on aquatic habitat factors and to species considered in this opinion can be limited by utilizing construction methods and approaches that are intended to minimize impacts. The effects of the proposed project have been evaluated based on general minimization and avoidance measures (Sunnyside Road EA, August 1998, pp. 115-118, BA pp 17-21.) Of particular importance are timing of actions to the preferred in-water work period (established by Oregon Department of Fish and Wildlife); implementing erosion control; limiting disturbance of riparian area, stream bank and bed; maintaining fish passage during construction; and minimizing direct discharge of sediments or pollutants into the stream.

For the project actions described below, the NMFS expect that the effects of the projects actions will tend to maintain or restore each of the functional elements contained in the effects matrix over the long-term, greater than one year. In the short term fine sediment and turbidity increases and minor interruptions and diversions of stream flow are expected. In the long term increased habitat access, removing of stream channel constraints, improved in-stream habitat, improved riparian habitat and interconnection, maintaining of flow regime, and maintaining shading and temperature are expected. The

potential effects from the sum total of proposed actions are expected to restore properly functioning stream conditions within the action area and restore properly functioning conditions or not further degrade the environmental baseline within the watershed.

Direct effects:

Sunnyside Road Widening and Crossing at Mt. Scott Creek

This site can be characterized by a moderately deep, well defined canyon containing a small stream and flood plain. The stream habitat is dominated by riffles and glides with some small pools. Riparian area contains trees along a narrow band. The area immediately down stream of Sunnyside Road is affected by residential development. Upstream, a riparian wetland has been impacted by sewer line and is dominated by blackberry.

The proposed action and construction of the bridge at Mt. Scott Creek is not expected to have a substantial direct effect on individual steelhead or cutthroat trout. The current estimates of the population numbers for these species in the action area are low (ODFW 1998) and there are substantial fish barriers downstream of the project site. The construction work will be conducted during the period of time where indicated fish species are less likely to be present or less sensitive to turbidity and suspended sediment. The preferred in-water work period for Mt. Scott Creek is during low water summer flows. Steelhead and cutthroat fry have emerged from the gravels by this time. Rearing of juvenile and adults will occur in lateral riffles for cutthroat and in the glides for steelhead. Rearing juveniles will prefer cooler water temperature. The water temperature at the project site would be expected to be sufficiently high to limit the presence of steelhead and cutthroat. The population numbers within Mt. Scott Creek are affected in part due to artificial fish migration barriers along Kellogg Creek and Mt. Scott Creek below the project. As fish passage is reestablished (fish barriers at I-205 and at the mouth of Kellogg Creek are expected to be fixed within the next few years as part of the Sunnybrook Road project) the reaches of Mt. Scott Creek within the action area will be more accessible to steelhead and cutthroat trout and the potential for direct affect increase.

The proposal to widen Sunnyside Road is expected to have a minimal, long term, adverse affect to Mt. Scott Creek hydrology. The proposal will result in an increase of impervious surface in the watershed and potential loss of wetland water storage function. This may result in an increase in stormwater runoff entering Mt. Scott Creek. Higher stormwater runoff can contribute to changes in seasonal flow patterns including high winter flows and low summer flows. This may affect stream conditions including increased stream bank erosion, availability of spawning and rearing habitat, and increased suspended sediments and chemical pollutants. The anticipated percentage increase of impermeable surface within the watershed is small, < 1%. Due to the high level of existing development within the watershed -- approximately > 60% -- the small amount of increase of impervious surface may not be discernible within the stream system. The stormwater from the road will be treated, and wetlands functions impacted from the proposed action will be mitigated to some degree. The change to water quantity and quality from widening of Sunnyside road is therefore expected to be minimal.

The proposed construction of the bridge at Mt Scott Creek is expected to have a minimal, short term, adverse affect to Mt. Scott Creek water quality and habitat elements. The construction of the bridge at

Mt. Scott Creek will result in the discharge of sediment and debris into the stream. Fine sediments discharged during the construction of the bridge may be transported in the stream as suspended sediments increased turbidity downstream and increasing the potential for in-filling within the streambed gravels. Increase turbidity can affect fish migration, feeding, and stream insect production. Imbedding of fine sediments in stream gravels can reduce spawning success. The sediment and debris input into the stream will be minimized by incorporating proposed conservation measures mentioned above. Physical barriers and silt screens will reduce sediments generated from construction site and staging areas. Large debris falling into the stream will be removed prior to completion of the work. Where feasible, stream flows will be isolated from active construction activity. This is expected to result in a short time period of disturbance and small amount of sediments and materials being discharged into the stream. Because of the low numbers of fish expected during construction period, the effect of turbidity on fish will minimal. Because of the small amount of sediment expected to be discharged from the site, the increase of embededness of the spawning gravels from this action will be small and dispersed over time.

The replacement of the existing culvert Mt. Scott Creek with a bridge is expected to have long term beneficial effects for steelhead and cutthroat trout. The concrete box culvert currently impairs fish passage. Removing the culvert will eliminate the fish barrier and allow for fish access to upper reaches of Mt. Scott creek. The habitat up stream of the project is considered good for spawning and rearing (BA, ODFW 1998). By replacing the culvert with a bridge, the existing road base coincidental to the bridge span will be removed. This will open and reconnect the riparian area upstream and downstream of the stream crossing. Replacing the culvert with a bridge will allow the stream to more effectively adjust to given hydrologic conditions. This can provide for a greater diversity of stream habitat and improvement to desired stream functions that support steelhead and cutthroat. The amount of restored riparian area and stream channel will exceed that lost due to widening of Sunnyside Road.

Sunnyside Road Widening and Crossing at Rock Creek

This site can be characterized by a moderately deep well defined canyon containing a small to moderate stream and flood plain. The stream habitat is dominated by riffles and glides and includes some pools. Riparian area is intermixed with trees and open fields.

The stream crossing at Rock Creek is similar in scope and effect as that for the Crossing at Mt. Scott Creek. The primary differences are that Rock Creek is a tributary to Clackamas River, it is located above a natural barrier to steelhead although cutthroat trout are present, and that the level of development and percentage of impervious area is less than in the Mt. Scott Creek watershed. The design and impact from the bridge at Rock Creek will be similar to that at Mt. Scott Creek. The effects will include minimal long term adverse effect due to an increase in impervious area, minimal short term adverse effect due to increase sediment and turbidity, and long term beneficial effect from improving fish passage and opening and reconnecting riparian areas.

Culvert - Sunnyside Road (Sieben Creek)-- Basin

This site can be characterized as a open field. The Sieben Creek is a small and narrow stream somewhat incised and includes a narrow band of riparian shrubs. The crossing is at the headwaters of Sieben Creek.

The stream crossing at Sieben Creek is substantially smaller in scope yet similar in effect to the crossing at Mt. Scott Creek and Rock Creek described above. Sieben Creek is a tributary to Clackamas River. An artificial barrier has restricted access to steelhead. The location of the crossing is beyond the expected range of steelhead due to the barrier and general physical character of the site. The habitat is most suitable for cutthroat trout. The effects of the proposed action will be similar but to a lessor degree to the effects of the proposed action on Mt. Scott Creek and Rock Creek. The construction approach at Sieben Creek will allow more extensive control of sediment and debris that would enter the stream. The stream is small and may dry up during summer months. Most of the work can be accomplish in the dry. The effects will include a minimal long term adverse effect due to an increase in impervious area, minimal short term adverse effect due to increase sediment and turbidity, and a long term beneficial effect from replacing existing culvert with an open bottom culvert placed consistent with ODFW fish passage standards that will facilitate fish migration.

Indirect effects:

Effects that are caused by the widening of Sunnyside Road and that are reasonably likely to occur because of that action are considered indirect effects. Urban development can be associated with road construction. Roads can provide access to areas which are then developed. Urban development may have substantial adverse effects to streams and stream systems that would support indicated fish species being evaluated in this BO. Urban development that is the direct result of, or caused by, the widening of Sunnyside Road is an indirect effect of this project. ODOT has indicated that widening of Sunnyside Road will not result in or cause substantial difference in the urban development patterns.

The quantity and rate of urban development is in part based on access to buildable lands and demand for new residential or commercial buildings. Sunnyside Road widening is intended to meet existing traffic deficiencies, not facilitate future development. ODOT has indicated that urban development would not result from, or be caused by, the widening of Sunnyside Road (EA, letter March 10, 1999). This is based on the current network of roads including Sunnyside Road which provide access to buildable lands. This position is demonstrated by the on-going development within the Sunnyside Road area and is the opinion of transportation planners familiar with traffic and growth in the Portland metropolitan area (presented during various coordination meetings discussing the Metro RTP process). The demand for new construction of residential and commercial development is clearly anticipated for the areas that are currently serviced by Sunnyside Road. Substantial efforts have been made to anticipate growth within the Portland area (Metro 2040). This planning process also helps to direct where the growth will occur. This area along the Sunnyside Road corridor and within the Mt. Scott Creek, Rock Creek and Sieben Creek is designed for growth.

Although the development within the vicinity of Sunnyside Road would be expected with, or without, the widening, the actual rate of development may be affected (EA p 43, Landuse Technical Report - EA p 5-4.). It is conceivable that the improvement to Sunnyside Road would provide a opportunity for a higher rate of development. The actual demand for new development will be affected by need for housing (anticipated for this area) and by other factors including quality of transportation. If transportation is poor within the Sunnyside Road area, this would have a detrimental affect on demand for new housing. The demand would go elsewhere. Improving Sunnyside Road could allow for higher quality service, improve traffic flows, and limit the potential deterrent.

The effects due to an increased rate of development are difficult to determine. The higher the rate of development the shorter the time period before the full effect of the impact is realized. For long term effects such as those associated with loss of permeable surface in the watershed, the ultimate outcome or effect will be the same, whether it is realized in a few years or in many. If delaying the full effect of development would provide an advantage for survival to any particular cohort, then the rate of development may be significant. Available information does not suggest that this is the case. Based on information provided by ODOT and consideration stated above, indirect effects of this project are considered minimal.

B. Effects of Interrelated & Interdependent Actions

Interrelated and interdependent actions are those actions associated with the proposed action and either are part of a larger complete action or have no independent utility apart from the proposed action. The direct and indirect effects of the interrelated and interdependent actions are considered along with those of the proposed action. The interrelated and interdependent actions can be considered an integral part of the proposed action, such that if not for the proposed action the interrelated and interdependent actions would not exist. The proposed widening of Sunnyside Road may include interrelated and interdependent actions to the extent that this project is part of a larger road system, or where additional development actions are taken as necessary to support and augment the Sunnyside Road widening.

The Sunnyside Road project has been evaluated for interrelated actions. The widening of Sunnyside Road is part of the larger road network designated in the regional transportation plan (RTP) developed by Metro. In the context of the RTP, Sunnyside Road is one part of a larger road network. The preliminary indications were that Sunnyside Road and the other road projects are considered interrelated actions. In further discussion with ODOT and Metro regarding the planning process, it became apparent that each transportation project was implemented as an independent separate action. The plan itself was not intended to be implemented as a whole, but only provide the guidance and the context for which each project can be identified, planned and implemented. Clearly, if not for Sunnyside Road widening, other transportation projects, elements of the RTP, would not exist in their same form (ODOT letter of March 10, 1999 and Metro meeting of January 1999). Yet, the ability to assess the specific aspects of the RTP that are the direct result of the widening of Sunnyside Road is limited. The implementation of any one of the plan elements does not obligate the construction of the others plan elements, and each project element within the plan is expected to stand on its own, with

many of the road projects receiving separate ESA consultation. Based on the available information, the interrelated actions are expected to be minimal.

The Sunnyside Road project has been evaluated for interdependent actions. Consideration has been given to development that would occur to augment the widening of Sunnyside Road or that would not have value without the project. Construction of stormwater detention facilities if required for this project could be considered an interdependent action. Access roads or construction of structures such as parking facilities that are required solely because of this project could be considered interdependent. For this project ODOT has indicated that road construction projects within the RTP are not interdependent. Although there are some references and implication to additional actions including changes of access points, construction of bicycle paths, and changes to landuse and zoning, it is not apparent the extent to which these changes augment or would not have value without the project. Speculating as to the types of actions that may be consider as interdependent, few of those would have a significant effect. Based on the available information, the interdependent actions are expected to be minimal.

C. Effects on Critical Habitat

NMFS designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for the indicated species includes the stream, bottom and water, and adjacent riparian zone within the defined geographic extent (as referenced Table 1.). For each of the proposed actions, NMFS expects that the effects of these actions will tend to maintain or restore properly functioning conditions in the watershed under current baseline conditions. The proposed actions will effect proposed critical habitat for steelhead. In the short term the proposed actions will increase fine sediment discharged into Mt. Scott, Rock and Sieben Creeks. In the long term the proposed actions will restore fish passage on Mt Scott Creek and restore riparian habitat connectivity on Mt. Scott and Rock Creeks. There will be minimal loss of riparian vegetation within the floodplain and upslope due to the widening of the road base. NMFS does not expect that these actions will diminish the value of the habitat for survival of the indicated species.

VI. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities are being (or have been) reviewed through separate section 7 consultation processes.

Urban development within the watersheds of Mt. Scott Creek, Rock Creek, and Sieben Creek will continue. These activities are likely to occur and increase the liklihood of take. Urban growth is managed in the Portland area through Metro. Metro establishes urban growth boundaries to accommodate and guide development. A long range plan, the 2040 plan, has projected population growth within the Mt. Scott Creek, Rock Creek, and Sieben Creek watersheds.

Urban development consisting of houses and commercial development is expected to increase hard impermeable surface to the landscape. These hard surfaces consisting of residential and commercial structures, roads, and parking lots will increase the amount of storm water runoff entering the streams Urban development will continue to reduce current wetland areas and water storage features in the landscape. It would be expected that sediment and chemical discharges into the streams will increase and the seasonal flow patterns will be altered, with expected increase peak flows of shorter duration during winter and a decrease of flows during summer.

The density and rate of development will vary by watershed. Mt. Scott Creek watershed will receive the greatest density of development in the short term. Based on available information, the existing development patterns around Mt. Scott Creek would continue. Through the assessment of aerial photography (Metro photo database September 20, 1997), it appears that the development within Mt. Scott Creek would result in an impervious surface of 50% or greater. This would be an approximate increase of 100% in impervious surface from present conditions. This level of impervious surface has a high potential for degrading stream systems (May et.al. 1997). Urbanization has been considered one of the major factors of decline for steelhead (NMFS 1996). The level of development within the Rock Creek and Sieben Creek watersheds is expected to be less. The developable lands constitute a small portion of the watershed and are zoned for lower density residential development.

Clackamas County and local governments are expected to implement stormwater and floodplain management actions. Metro has development standards under their urban growth management functional plan - Title 3 for protecting floodplains establishing guidance for stream setbacks and buffers. Clackamas county requires storm water detention facilities with each new residential and commercial development. The county, through the department of Water Environment Services (WES) has established certain surface water and erosion protection guidelines and review development plans to comply with these guidelines. These action are expected to mitigate some of the adverse effects from future urban development.

VII. Conclusion

NMFS has determined that, based on the available information, that the proposed actions covered in this opinion are not likely to jeopardize the continued existence Lower Columbia River steelhead or the Southwestern Washington Columbia River cutthroat trout or result in the destruction or adverse modification of critical habitat. NMFS used the best available scientific and commercial data to apply its jeopardy analysis when analyzing the effects of the proposed action on the biological requirements of the species relative to the environmental baseline together with cumulative effects. NMFS considered the baseline conditions within the action areas and determined that conditions to support the species are not being met. Cumulative effects will be significant and continue to adversely affect the stream conditions in the long term. NMFS found that project would cause minor, short-term adverse

degradation of anadromous salmonid habitat due to sediment impacts and habitat displacement. NMFS found that minor long term adverse affects to riparian areas would be offset by the long term benefits of improving access to spawning and rearing habitat. Direct mortality from this project is not expected to occur.

The NMFS expects that the project will not appreciably reduce the likelihood of survival and recovery of the species. This is based on the low populations of steelhead and cutthroat trout within the project areas, and expected improvement to habitat access. The short term construction impacts will not likely have an immediate discernible effect on the population. The potential increase of spawning and rearing habitat will improve conditions for survival and recovery of steelhead and cutthroat trout.

The NMFS expects that the project will not adversely modify critical habitat. The impact to the riparian area at the stream crossing of Mt. Scott Creek, Rock Creek, and Sieben Creek are not expected to appreciably reduce the functional capabilities of the stream to support the indicated fish species or reduce the likelihood of their survival or recovery.

VIII. Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. The NMFS does not recommend and additional measures to those general minimization and avoidance measures as described in the BA.

IX. Reinitiation of Consultation

Consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

X. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion.

Busby, P., S. Grabowski, R. Iwamoto, C. Mahnken, G. Matthews, M. Schiewe, T. Wainwright, R. Waples, J. Williams, C. Wingert, and R. Reisenbichler. 1995. Review of the status of steelhead (Oncorhynchus mykiss) from Washington, Idaho, Oregon, and California under the U.S. Endangered Species Act. 102 p. plus 3 appendices.

Busby, P.J., T.C. Wainwright, G.J. Bryant, L.J. Lierheimer, R.S. Waples, F.W. Waknitz, and I.V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-NWFSC-27, 261p.

NMFS. 1996. Factors for Decline, A Supplement to the Notice of Determination for West Cost Steelhead Under the Endangered Species Act. National Marine Fisheries Service, Protected Species Branch. Portland, Oregon.

May, C.W, E.B. Welch, R.R. Horner, J.R. Karr and B.W. Mar. 1997. Qaulity Indices for Urbanization Effects in Puget Sound Lowland Streams. Washington State Department of Ecology, Publication No. 98-04.

ODFW 1998. Distribution of Fish and Crayfish and Measurment of Available Habitat in Streams of the North Clackamas Urban Area, Annual Report 1997-1998. Oregon Department of Fish and Wildlife, Clackamas, Oregon

Trotter. 1989. Coastal cutthroat trout: A life history compendium. Trans. Am. Fish. Soc. 118:463-473.

XI. Incidental Take Statement

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patters such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS anticipates that the action covered by this Biological Opinion has more than a negligible likelihood of resulting in incidental take of Lower Columbia River steelhead because of detrimental effects from increased sediment levels and the potential for direct incidental take during in-water work. Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be

measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the information in the BA, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion. This take is specific to the temporary increase of turbidity, incidental discharge of sediment, and temporary diversion or rechanneling of the stream during construction of the stream crossings and contained within the action area.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species:

1. Fish passage be established and maintained to maximize fish access to upstream spawning and rearing habitat.
2. Storm water runoff from the road surface and road ditches be managed to reduce physical and chemical pollutants from entering the streams.
3. Erosion protection plan be developed and implemented for the project to reduce sediment and chemical pollutant discharges into the streams.
4. Disturbed riparian areas and construction staging areas be restored or otherwise treated to reduce adverse temperature effects and sediment discharge.
5. In-water work be isolated from the flowing water and/or conducted during selected time periods to reduce the potential of direct impacts to steelhead and cutthroat trout.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, ODOT must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary:

1a. All in-stream flow diversions be constructed to meet the ODFW fish passage standards.
1b. All construction debris materials shall be removed from the stream bed, banks and flood plains to minimize the potential barrier to fish migration.
1c. The completed stream crossing shall meet the ODFW fish passage standards. Restored stream beds shall incorporate native stream bed materials or in-stream structures designed to collect stream bed material to establish and maintain fish passage in the long term.
2. All storm water collected on road surfaces and transmitted through road ditches which directly enter the stream system shall be filtered, or otherwise treated utilizing bioswales, wetlands, detention basins, or equivalent methods to effectively reduce sediment and chemical pollutants.

3a. All construction debris shall be removed from the stream, floodplain, and riparian area as soon as practicable and not stockpiled. Temporary placement of material or debris within the floodplain shall be covered or otherwise protected from erosion.

3b. All construction areas shall incorporate erosion protection including silt barriers, silt fences, and equivalent.

4a. All disturbed stream banks and riparian areas shall be restored with native plant materials.

4b. All staging and access areas disturbed with exposed bare ground shall be restored with native plant materials or otherwise covered with erosion protection mats or equivalent.

5a. Construction of the stream crossings that would involve in-water work or affect stream flow, quality or quantity shall be done within ODFW in-water work period or as otherwise agreed to by ODFW and NMFS.

5b. Operation of heavy equipment and in-water demolition and construction activities shall be isolated from the actively flowing stream.